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**Alpine ski/binding/boot (S-B-B)
system — Assembly, adjustment and
inspection**

*Ensemble ski/fixation/chaussure (SFC) pour skis alpins — Montage,
réglage et contrôle*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment*, Subcommittee SC 4, *Snowsports equipment*.

This seventh edition cancels and replaces the sixth edition (ISO 11088:2018), which has been technically revised.

The main changes are as follows:

- [Table 1](#) on boot binding compatibility has been added;
- former Table A.1 on the determination of skier type (example 1) has been removed;
- [6.4](#) has been updated;
- [Figure C.1](#) has been updated;
- normative references have been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

International Standards exist for the components of the alpine ski/binding/boot (S-B-B) system, mainly intended for the component manufacturers. An International Standard, ISO 8061, also exists for the selection of release values.

This document is intended primarily for retailers. However, its aim is to include, in one text, the different phases of the choice of components, their assembly, adjustment and inspection in the form of practical procedures, and to provide tolerances for inspection and adjustment. It can be used by all individuals and institutions concerned with those procedures.

The inspection procedures and tolerances described in this document apply to the condition of the S-B-B system before it leaves the ski shop to judge the condition of the equipment once it is put into use and for periodic verification of used equipment.

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Alpine ski/binding/boot (S-B-B) system — Assembly, adjustment and inspection

1 Scope

This document specifies assembly, adjustment and inspection procedures for the binding mechanisms of skis, integrating, in a practical way, the requirements of International Standards which are related to skis, bindings and boots.

It is applicable to a ski-binding-boot system (S-B-B) for alpine skiing, of which at least one component is owned by the user.

This document is applicable for complete and incomplete alpine ski-binding-boot systems which are owned by the user or rented for 15 days or more.

NOTE ISO 13993 gives a method of measurement for equipment which is rented for less than 15 days.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5355, *Alpine ski-boots — Requirements and test methods*

ISO 8061:2019, *Alpine ski-bindings — Selection of release torque values*

ISO 8364, *Alpine skis and bindings — Binding mounting area — Requirements and test methods*

ISO 9462, *Alpine ski-bindings — Requirements and test methods*

ISO 9523, *Touring ski-boots for adults — Interface with touring ski-bindings — Requirements and test methods*

ISO 11087, *Alpine ski-bindings — Retention devices — Requirements and test methods*

ISO 11110, *Winter sports equipment — Test devices for the setting of the functional unit ski/boot/binding — Requirements and tests*

ISO 13992, *Alpine touring ski-bindings — Requirements and test methods*

ISO 23223:2021, *Alpine ski boots with improved walking soles — Interface with alpine ski-bindings — Requirements and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 fitting adjustment
procedure required to obtain geometric compatibility and correct functioning of different components

3.2 indicator setting
Z-mark
release indicator value marked on the binding

Note 1 to entry: The binding shall be in accordance with ISO 9462.

3.3 skier type
release preference
release adjustment (3.7) criteria pertaining to the type of skiing to be undertaken, as assessed by the skier in accordance with [Table A.1](#)

Note 1 to entry: If the skier desires a setting outside the tolerances of this document, he or she can select such a setting at his or her own discretion. Ski-binding manufacturers should provide guidelines to shops and skiers regarding the recommended magnitude of such changes. Skiers should be clearly informed when these changes result in *release values* (3.5) above the upper limit or below the lower limit specified in ISO 8061.

3.4 initial indicator position
release indicator position of the binding corresponding with specific instructions

Note 1 to entry: The instructions shall be in accordance with [Annex B](#).

3.5 release value
 M_Z, M_Y
maximum torque or moment, M_Z and M_Y , for which the boot disconnects quasistatically from the binding

Note 1 to entry: Moment is the force couple and a torque is a force applied to a lever arm.

3.5.1 selected individual release value
reference value
torque or moment based on the skier's choice of skier type and skier's height and mass for which the boot disconnects from the binding

Note 1 to entry: The determination of selected individual release values shall be in accordance with ISO 8061.

3.5.2 measured release value
torque or moment for which the boot disconnects from the binding for a given S-B-B system

Note 1 to entry: It is expressed in newton metres.

Note 2 to entry: The procedure is given in [6.7](#).

3.6 inspection range
maximum acceptable difference between the *measured release value* (3.5.2) and the *selected individual release value* (3.5.1)

Note 1 to entry: It is specified as $\pm 15\%$ of the selected individual release value, or ± 3 Nm for twist and ± 10 Nm for forward lean, whichever is greater, or one horizontal row up or down from the selected individual release value determined in [Table B.1](#) or on the binding manufacturer's adjustment chart.

3.7**release adjustment**

procedure for making the *measured release values* (3.5.2) coincide with the *selected individual release values* (3.5.1) within specific limits

Note 1 to entry: The limits shall be as stated in [Table B.1](#).

3.8**trouble-shooting**

additional procedures recommended by the equipment manufacturer in order to overcome observed functional problems

3.9**re-adjustment range**

maximum acceptable difference between the *measured release value* (3.5.2) and the *selected individual release value* (3.5.1) that allows corrective actions

Note 1 to entry: It is specified $\pm 30\%$ of the selected individual release value, or $\pm 6\text{ Nm}$ for twist and $\pm 20\text{ Nm}$ for forward lean, whichever is greater, or two horizontal rows up or down from the selected individual release value determined in [Table B.1](#) or on the binding manufacturer's adjustment chart.

4 Principle

Follow the procedure shown in [Annex C](#).

5 Skier's parameters

5.1 General

The selected individual release values shall be in accordance with ISO 8061. As the differences are insignificant, the following procedure, using discrete values, is an acceptable approximation.

5.2 Weight method

5.2.1 Determine the skier's parameters:

- a) mass;
- b) height;
- c) type (in accordance with [Annex A](#));
- d) age;
- e) boot sole length.

5.2.2 Using [Table B.1](#), choose the individual release values of M_Z and M_Y .

6 Equipment parameters

6.1 Choice of new equipment

The components shall be in accordance with the following International Standards:

- a) ISO 8364 for skis;
- b) ISO 5355 and ISO 9523 for boots;

- c) ISO 9462 and ISO 13992 for bindings;
- d) ISO 11087 for brakes.

The skier should receive specific recommendations concerning the selection of boot, binding and ski, if they are provided by the manufacturer.

6.2 Visual inspection and preparation of used equipment

If any of the components of the S-B-B system have been used, the installer shall carry out a visual check according to the criteria below. In addition, older equipment can require special attention as specified by the manufacturer.

- a) The edges and base of the ski should be properly prepared according to the recommendations of the ski manufacturer. Unused mounting holes, if any, shall be carefully filled in, according to the manufacturer's specifications.
- b) The condition of the boot sole shall meet the binding manufacturer's requirements. All buckles, fasteners and support areas shall be in good condition.

In cases where release is independent of the boot (e.g. some plate bindings), the inspection of the sole can be less exacting.

- c) The condition of the binding components shall meet the binding manufacturer's requirements (i.e. no broken, deformed, missing or worn-out parts).

Component guides or rotation points shall be free-moving, free of obvious rust, corrosion and dirt, etc.

The manufacturer's inspection and maintenance instructions shall be observed (including lubrication).

The brake shall not be deformed. Suspect components shall be repaired or exchanged.

6.3 Assembly

When assembling the system, conform with the instructions of the binding and ski manufacturers and use the proper tools.

It is recommended to use a drill in accordance with [Annex E](#). Once the holes are drilled, it is recommended that they be tapped and glue applied if required by the ski manufacturer. New holes shall not be drilled less than 10 mm from old holes (measured from centre of hole to centre of hole), even when they are filled in, unless otherwise specified by the ski or binding manufacturer.

When inserting the screws, take care not to damage the threads. A maximum tightening value of 4 Nm shall fulfil this requirement, unless otherwise specified by the ski manufacturer.

6.4 Compatibility and binding-to-boot fitting adjustments

Follow the binding manufacturer's instructions.

Unless specifically allowed by the boot manufacturer, replacement soles or parts shall be from the original boot manufacturer only.

All replaceable sole pads shall be according to the same International Standard, i.e. ISO 5355 or ISO 23223 or ISO 9523.

After the replacement of the sole pads, a release test of the ski/boot/binding system shall be performed.

After replacement of the sole pads, the boots that conform with ISO 23223 shall be marked according to ISO 23223:2021, Clause 5 d).

After replacing the soles, the compatibility shall be checked in accordance with [Table 1](#).

Table 1 — Boot binding compatibility

Boot according (see marking on solepads +shell)	Compatible with bindings marked with (see AFD area)						
ISO 5355 - TYPE A	A	-	CA	A + ①	-	CA + ①	MN
ISO 5355 - TYPE C	-	C	CA	-	C + ①	CA + ①	-
ISO 23223 - TYPE A	-	-	-	A + ①	-	CA + ①	MN
ISO 23223 - TYPE C	-	-	-	-	C + ①	CA + ①	-
ISO 9523	-	-	-	-	-	-	MN

Key

AFD Antifriction device

MN Multinorm

① Logo or pictogram or colour code or the letter "W", identical to the one on a boot that conforms with ISO 23223

6.5 Initial indicator adjustment

The binding manufacturer shall provide a table similar to [Table B.1](#) for his/her products.

Using [Table B.1](#), adjust the bindings to the appropriate initial indicator position.

6.6 Functional check (inspection of functions)

Check visually that everything is according to the binding manufacturer's instructions and operates correctly.

Check if the boot returns quickly to its initial position within less than 2 mm after a sideward displacement of approximately 10 mm.

6.7 Measurement of release value

Precondition the binding by releasing each unit as required by the binding manufacturer.

Using a test device in accordance with ISO 11110, proceed as follows:

- Follow the test device manufacturer's instructions and check the calibration of the test device according to the manufacturer's procedures.
- Perform a measurement for $+M_Z$, $-M_Z$ and $+M_Y$ each.
- Check that the measured $+M_Z$, $-M_Z$ and $+M_Y$ values are within the limits of the inspection range. If so, no further actions are required; proceed according to e). If the release measurements do not fall within the inspection range but within the accepted re-adjustment range, proceed according to d). If the release measurements do not fall within the inspection range and do not fall within the accepted re-adjustment range, proceed according to f).
- The equipment manufacturers' instructions for trouble-shooting shall be followed. Re-adjustment of the binding shall be undertaken. These re-adjustments shall achieve measured values as close as practical to the selected individual release value, within the inspection range. If so, no further actions are required; proceed according to e).
- If the measured $+M_Z$ and $-M_Z$ values fall near opposite limits of the inspection range, the manufacturer's procedure for evaluation of non-symmetrical release shall be implemented.
- If the release values are out of the accepted re-adjustment range, the equipment manufacturers' instructions for trouble-shooting shall be followed before proceeding. If no instructions are provided, the person mounting the bindings shall conduct a clean versus lubricated diagnostic test in accordance with [Annex D](#).

6.8 Report

An adjustment report is established by the ski shop and delivered to the user. It shall contain at least the following information:

- a) skier's parameters (age, mass, height);
- b) indicator setting;
- c) measured values of M_Z and M_Y , or pass/fail result of the system test;
- d) binding manufacturer with binding type;
- e) boot manufacturer with boot model, sole length and specific sole configuration (if applicable);
- f) ski manufacturer with ski length;
- g) warning that the equipment cannot provide full protection from injury if an accident occurs;
- h) indication which component is owned by the skier, if applicable;
- i) skier type and release preference requested by the skier;
- jj) further modifications requested by the skier.

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Annex A (normative)

Skier type

A.1 Skier types

A.1.1 It is the responsibility of the skier to determine his or her skier-type classification into one of three types (1, 2 and 3) in accordance with [Table A.1](#).

Other characters and figures may be used to be consistent with national standards or customs, such as "I" for type 1, "II" for type 2 and "III" for type 3, which is the required use in North America.

A.1.2 These designations, 1, 2 and 3, should not be used by equipment manufacturers to categorize their products.

A.1.3 The information given in [Table A.1](#) is an example of the kind of layout that can be used to assist the skier in determining his or her skier type.

A.1.4 The information given in [A.1.3](#) can be used to assist the skier in determining the appropriate skier-type classification and to make him aware of the risks related to each classification.

A.2 Discretionary settings

A.2.1 Skiers 10 years of age and older who desire a higher or lower setting than the setting of their skier type shall be in accordance with ISO 8061:2019, 6.3.4 a), 6.3.4 b), 6.3.4 c) or 6.3.4 d), may designate their preference with a + or – sign next to their skier type designation.

A.2.2 The use of these classifications in determining the release setting can be inappropriate for some types of competition skiing.

Table A.1 — Example of determination of skier type^a

Type	1	2	3
Explanation	Entry-level skiers preferring lower release settings	Skiers preferring release settings suitable for most skiers	Skiers preferring higher release settings
Description	<p>Skiers who designate themselves as type 1 receive lower than average release settings. This corresponds to an increased risk of inadvertent binding release to have releasability in a fall.</p> <p>This type also applies to entry-level skiers uncertain of their classification.</p>	<p>Skiers who designate themselves as type 2 receive average release settings suitable for most recreational skiers.</p>	<p>Skiers who designate themselves as type 3 receive higher than average release settings. This corresponds to decreased releasability in a fall to have a decreased risk of inadvertent binding release.</p> <p>This classification is not recommended for skiers of 22 kg or less.</p>

^a The expression “release preference” can be used instead of “skier type” for this example.

Annex B

(normative)

Method of setting

B.1 Locate the skier's mass and height in the appropriate column in [Table B.1](#). If mass and height are not on the same line, select the line closest to the top of the table.

B.2 Consider the skier type (see [Annex A](#)):

- a) for a type 1 skier, stay on the line and use the selected individual release value (M_Z and M_Y) on that line;
- b) for a type 2 skier, move down one line and use the selected individual release value (M_Z and M_Y) on that line;
- c) for a type 3 skier, move down two lines and use the selected individual release value (M_Z and M_Y) on that line.

Other characters and figures may be used to be consistent with national standards or customs, such as "I" for type 1, "II" for type 2 and "III" for type 3, which is the required use in North America.

B.3 Consider the skier's age. For skiers who are 50 years of age and older (≥ 50 years), or 9 years of age and under (< 10 years), move up one line.

B.4 The setting obtained after having considered skier type and age may additionally be lowered or raised in the following cases:

- a) skiers who have satisfactory experience with lower settings regarding the manufacturer's recommendations may request settings based on their experience;
- b) skiers who have skiing experience without inadvertent releases may request a setting that corresponds to one line up in [Table B.1](#);
- c) skiers having certain characteristics like a neutral skiing technique, defensive attitude, high degree of control, etc. may request a setting that corresponds to one line up in [Table B.1](#);
- d) skiers who have experienced inadvertent releases may request a setting that corresponds to one line down in [Table B.1](#).

B.5 Skiers may request settings that are different for twist and forward lean.

B.6 Using the boot sole length, determine the initial indicator value.

B.7 The inspection range is equivalent, in [Table B.1](#), to the difference between the value located one line above and the value located one line below the selected individual release value.

B.8 The accepted re-adjustment range is equivalent, in [Table B.1](#), to the difference between the value located two lines above and the value located two lines below the selected individual release value.

Table B.1 — Release value selection using skier's mass

Mandatory release values					Examples for initial indicator position								
Skier's parameters			Inspection parameters		These are only the starting points in the binding setting process and can be modified to bring the measured release values into the inspection range.								
Skier's mass kg	Skier's height m	Skier code	Twist M_Z Nm	Forward-lean M_Y Nm	≤230 mm mm	231 mm to 250 mm mm	251 mm to 270 mm mm	271 mm to 290 mm mm	291 mm to 310 mm mm	311 mm to 330 mm mm	331 mm to 350 mm mm	≥351 mm mm	
—	—	—	5 ^a	18 ^a	—	—	—	—	—	—	—	—	
10 to 13	—	A	8	29	0,75	0,75	0,75	—	—	—	—	—	
14 to 17	—	B	11	40	1,00	0,75	0,75	0,75	—	—	—	—	
18 to 21	—	C	14	52	1,50	1,25	1,25	1,0	—	—	—	—	
22 to 25	—	D	17	64	2,00	1,75	1,50	1,5	1,25	—	—	—	
26 to 30	—	E	20	75	2,50	2,25	2,00	1,75	1,50	1,50	—	—	
31 to 35	—	F	23	87	3,00	2,75	2,50	2,25	2,00	1,75	1,75	—	
36 to 41	—	G	27	102	—	3,50	3,00	2,75	2,50	2,25	2,00	—	
42 to 48	≤1,48	H	31	120	—	—	3,50	3,0	3,00	2,75	2,50	—	
49 to 57	1,49 to 1,57	I	37	141	—	—	4,50	4,0	3,50	3,50	3,0	—	
58 to 66	1,58 to 1,66	J	43	165	—	—	5,50	5,0	4,50	4,00	3,50	3,00	
67 to 78	1,67 to 1,78	K	50	194	—	—	6,50	6,0	5,50	5,00	4,50	4,00	
79 to 94	1,79 to 1,94	L	58	229	—	—	7,50	7,0	6,50	6,00	5,50	5,00	
≥95	≥1,95	M	67	271	—	—	—	8,50	8,00	7,00	6,50	6,00	
—	—	N	78	320	—	—	—	10,00	9,50	8,50	8,00	7,50	
—	—	O	91	380	—	—	—	11,50	11,00	10,00	9,50	9,00	
—	—	—	105	452	—	—	—	—	—	12,00	11,00	10,50	
—	—	—	121	520	—	—	—	—	—	—	—	—	
—	—	—	137 ^b	588 ^b	—	—	—	—	—	—	—	—	

NOTE 1 For skiers of 13 kg and under, no further correction is appropriate.

NOTE 2 For skiers of 17 kg and under, skier type -1 (see A.2.1) is inappropriate.

^a Lowermost tolerance limit.

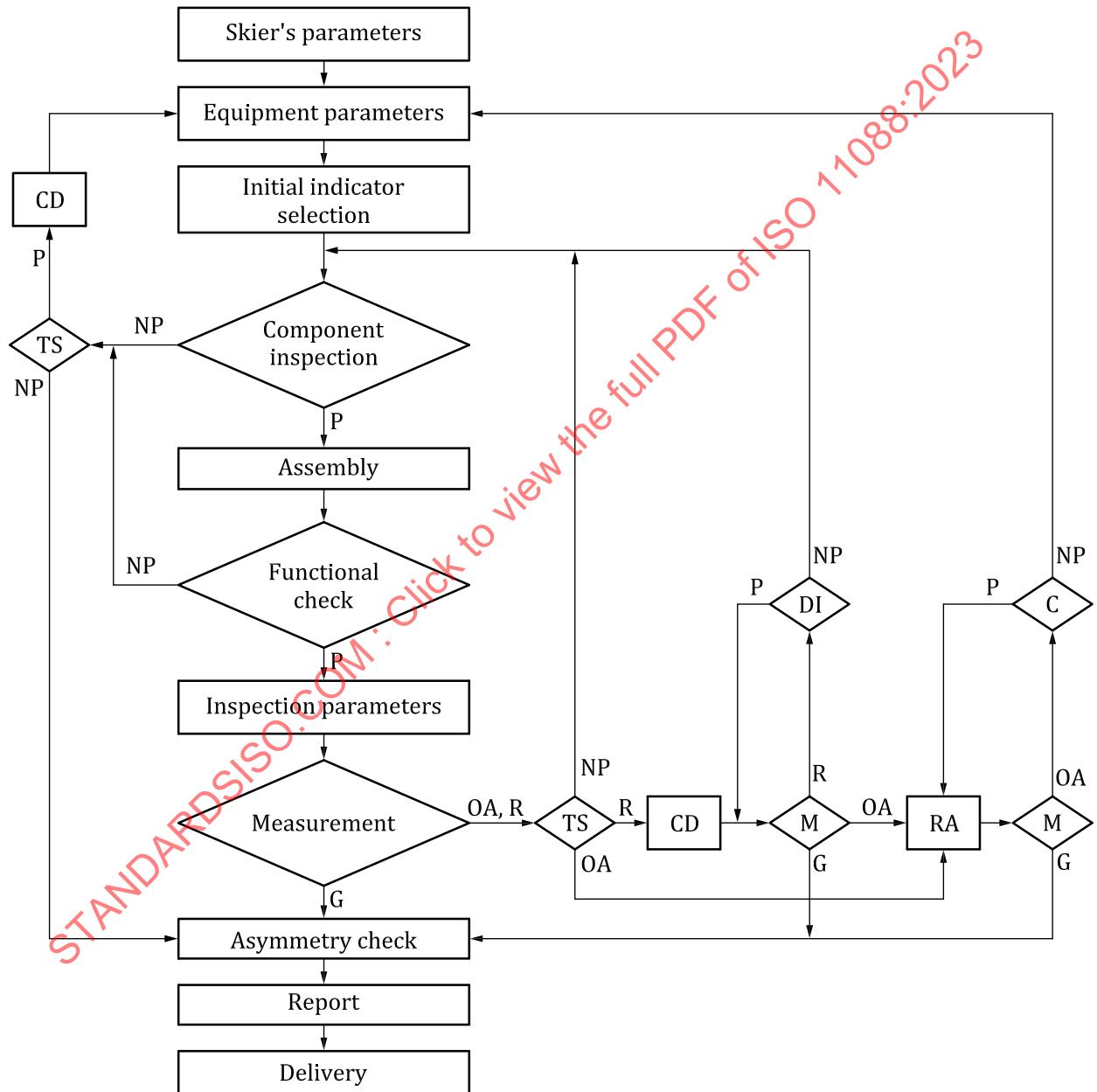
^b Uppermost tolerance limit.

Annex C

(normative)

Flowchart

See [Figure C.1](#).



Key

P	pass	G	within inspection range	R	outside accepted re-adjustment range
TS	trouble shoot	M	re-measure	DI	diagnostic inspection
NP	not pass	RA	readjust	OA	outside inspection range, within accepted re-adjustment range
CD	correct defect	C	check indicator run		

Figure C.1 — Flowchart